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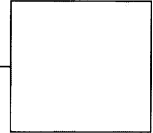
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Consensus and divergence in perceptions of cognitive strategic groups: evidence from the health care industry

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Abstract

We examined the extent to which consensus existed among hospital administrators' cognitive strategic groups and explored task and institutional factors that might influence these perceptions. We elicited perceived strategic groups from hospital administrators in a distinct geographic market using the full context form of the repertory grid. Our evidence indicates that beliefs are shared by a majority of administrators in the region, that differences in perception are associated with strategic position, and that cognitive groups focus managerial attention. These findings highlight the roles of both task and institutional environments on cognitive strategic group formation and suggest an important role for these groups in strategic decision-making.

Key words • competitive analysis • managerial cognitions • mental models • strategic groups

Recently, research on strategic groups has been enriched by the addition of a cognitive approach. Instead of forming groups based on attributes drawn from theory, cognitive researchers examine the mental maps of individual strategic decision-makers to learn how other industry members are viewed and how this information is incorporated into strategic decision-making. The idea behind this research is that managers' perceptions are important because they influence strategy formulation, strategic action, and ultimately, industry structure (Reger and Huff, 1993).

To explore these influences, a number of studies have identified and examined cognitive strategic groups within specific industries (cf. Lant and Baum, 1995; Porac et al., 1989; Reger and Huff, 1993). This stream of research is based on social constructionist ideas about the ways in which firms enact their competitive environment (Osborne et al., 2001; Weick, 1979; Smircich and Stubbart, 1985) through formal and informal interaction, coordination efforts and imitation (Porac et al., 1989). Typically, data from managers' individual

mental maps, or themes from individual company documents are aggregated to create a collective set of strategic groups which are then linked to objective attributes such as firm size, target market, or performance (Lant and Baum, 1995; Porac and Thomas, 1990; Nath and Gruca, 1997; Osborne et al., 2001). By showing links between cognition and behavior, researchers seek to demonstrate that cognitive strategic groups are both real and produce meaningful effects.

In contrast to this approach, a second stream of cognitive research views the extent to which cognitive groups are shared within industries as an empirical question. According to Hodgkinson and Johnson (1994), the aggregate-level approach implies a level of consensus within and between organizations that is questionable, and fails to acknowledge individual differences in managerial perceptions. Studies by Daniels et al. (1994) and Johnson et al. (1998) have also revealed considerable diversity among managerial mental models within single industries.

In this paper, we link these two research streams by examining similarities and differences among hospital administrators' cognitive strategic groups in one geographic market segment of the health care industry. Connecting these two perspectives raises several pressing questions. How much consensus exists among hospital administrators with regard to strategic groups in their industry? Do administrators of hospitals occupying different strategic positions perceive different strategic groupings? What characteristics of another hospital influence the likelihood that an administrator will choose to include it as part of his or her own strategic group?

Our specific aim is to show that some elements of managers' mental maps are widely shared and have become institutionalized, while others are more idiosyncratic and related to firms' strategic position, and advance an explanation for why this occurs. Our attention to the types of hospitals that are chosen most frequently as referents by our respondents also provides a new lens on the effects of institutionalization processes on strategic decision-making. More generally, our study adds to the literature on competitor analysis and strategic decision-making, two central aspects of strategic management that are rich in cognitive content (Porac and Thomas, 1994), and shaped importantly by managers' beliefs about their competitive environment (Gripsrud and Gronhaug, 1985; Porac and Thomas, 1990; Reger, 1990; Walsh, 1995).

Strategic groups: structural and cognitive approaches

Hunt (1972: 207) first defined strategic groups as groups of firms that are similar to each other on main characteristics and different from others on those same characteristics. An I/O (Industrial Organization) economist, Hunt viewed these groups as elements of industry structure isolated by specific strategic dimensions. This view was based on two assumptions (Porter, 1978; Caves and Porter,

1977): first, that strategic groups are persistent structural features of industries; and second, that they possess varying levels of protection from rivalry, and therefore, varying levels of performance. In the 1970s and 1980s, researchers attempted to identify strategic groups based on attributes such as size (Hunt, 1972; Porter, 1978), product line (Hunt, 1972); vertical integration (Newman, 1978), leader/follower classification (Porter, 1978), and technology (Fiegenbaum and Thomas, 1990). When entered into some combination of factor or cluster analysis, all of these variables generated groups; however, it was not clear how these groups related to performance. Over time, some researchers (cf. Hunt, 1972; Newman, 1978; Porter, 1978) found clear performance differences between groups, while others (cf. Frazier and Howell, 1983; Dess and Davis, 1984; Johnson and Thomas, 1987; Cool and Schendel, 1987; Lewis and Thomas, 1990) did not.

In light of these conflicting results, some researchers began to express doubts about the relationship between group membership and firm performance and to ask whether researcher-formed strategic groups were merely statistical artifacts (Barney and Hoskisson, 1990; Cool and Schendel, 1988; Hatten and Hatten, 1987). They criticized the use of factor or cluster analysis to group firms because such methods are designed to find groups, and took issue with researchers picking the dimensions used to group firms, arguing that this type of intimate industry knowledge is not generalizable. This critique opened the door to the cognitive approach.

Cognitive researchers assume that strategic group perceptions begin with individual managers and eventually become shared through processes of social construction (Berger and Luckman, 1967). In their well-known study of the Scottish knitwear industry, Porac et al. (1989) showed how mental models of competing strategists became institutionalized as a result of formal and informal interaction, coordination efforts, and imitation (DiMaggio and Powell, 1983; Aldrich et al., 1984). Once formed, these group-level beliefs about the marketplace influence subsequent managerial perceptions and actions.

Reger and Huff (1993) used cognitive dimensions provided by executives to classify companies in the Chicago banking industry. Their findings demonstrated that strategists share perceptions about strategic similarities of subgroups of firms and use similar ways of grouping industry participants. Lant and Baum (1995) identified cognitive groups from the competitor definitions provided by managers of New York City hotels. Like Reger and Huff, they found that managers grouped firms similarly and used similar categorization schemes to do so, but in addition, their research showed firms within cognitive groups to be more similar to each other on both objective measures of strategy and subjective managerial beliefs than to firms in other cognitive groups.

More recently, other strategic groups researchers have demonstrated a convergence between cognitive groups and those formed with objective data (Nath and Gruca, 1997; Osborne et al., 2001). In fact, Osborne et al. (2001) declared

that by doing so, cognitive researchers had finally settled the dispute concerning whether strategic groups are real or simply artifacts of cluster analysis (Hatten and Hatten, 1987; Barney and Hoskisson, 1990). They suggested that their own research on the pharmaceutical industry, which linked cognitive groups at one time period to performance groups at a later time period, provided strong support for the concept of recursive competitive enactment (Weick, 1979; Reger and Huff, 1993; Smircich and Stubbart, 1985).

In sum, this stream of research appears to be based on the assumptions that to be meaningful, cognitive strategic groups must be acknowledged by industry participants (Peteraf and Shanley, 1997), and must then influence firm behaviors and/or performance. As a result, researchers have generally proceeded by aggregating individual mental maps in some way to reveal a collective view of the industry structure, and then relating aspects of the shared map to objective indicators of strategy and/or performance. Another stream of cognitive groups research, however, has demonstrated diversity in mental models.

In Reger's initial study of the Chicago banking industry, she reported a 'surprisingly low level of agreement' among industry executives regarding important strategic dimensions (1990: 77). Research by Hodgkinson and Johnson (1994), Daniels et al. (1994), and Johnson et al. (1998) also found significant diversity among the mental maps of managers. In fact, Johnson et al. (1998) concluded that managers' knowledge structures are fairly idiosyncratic, and suggested that future work focus on ways to reduce diversity in order to create the consensus required for strategic decision-making.

Finally, a study by Daniels et al. (2002) asked 32 managers from six firms in the UK personal finances industry to rate the similarity of other managers' mental maps of industry competition to their own. Results showed that managers rated maps created by other managers in their own organizations as most similar to their own. Additionally, middle managers rated the maps of other middle managers as more similar to their own while senior managers rated other maps as less similar regardless of who produced them. The authors attributed the similarities among middle managers to institutional forces, and the similarities within organizations to the task environment. They also suggested that the perceived diversity in senior managers' maps was due to their greater emphasis on strategic or task environment issues. Although they observed some evidence of both convergence and divergence among respondents' ratings of others' maps, Daniels et al. did not study the actual similarities and differences in the maps themselves. In drawing conclusions, they noted that further research would be necessary to build upon their study of global similarities and differences in cognition.

Consensus and divergence in cognitive strategic groups

In this study, we extend the work of Daniels et al. (2002) by suggesting that task and institutional factors act to influence managerial perceptions of strategic

groups in their industry. Task environment influences stem from the distinctive strategic positions created by firms in an effort to obtain a competitive advantage. Top managers of firms holding different strategic positions may see their competitive worlds differently, hence, mental maps should diverge. Yet, this differentiation takes place in a context shaped by prevailing institutional arrangements (Scott, 1998). Because markets are socially constructed, competitors are subject to isomorphic forces leading to convergence of common templates of competition, and some similarities among mental maps should be observed (Daniels et al., 2002). In this section of the paper, we derive three hypotheses relating the similarities and differences of managers' perceived strategic groups to these task and institutional forces.

Representative firms

It is now fairly well accepted that managers' cognitive categorizations of relevant competitors not only reflect the attributes of firms within competitive groups, but eventually create those groups as well (Lant and Baum, 1995: 19), at least to the extent that those categorizations become widely shared and accepted. This process exemplifies the recursive process of enactment described by Weick in 1979. It is a distinctly social and political process. Yet, not all individual beliefs become shared. Nor do all shared beliefs become taken for granted. According to Langfield-Smith (1992), some aspects of individuals' cognitive maps will overlap and some will not. She maintains that the degree of sharing varies greatly among individuals in an organization and from organization to organization. Indeed, she contends that it is essential to examine the extent to which those beliefs are shared and the subsequent strengths or weaknesses that this sharing lends to organizational functioning (1992: 352).

Although Langfield-Smith was writing about the extent to which individual beliefs become shared within groups or organizations to become cultures, we believe that her ideas are also relevant to the process by which individual managerial beliefs become shared across organizations to form industry structures. This means that the mental maps of managers of organizations within a particular industry should have some elements in common and some that are idiosyncratic. Were a shared map to be constructed in this case, it would be characterized in certain respects by what Lant and Baum (1995: 23) termed a 'density of linkages'. That is, some elements would be more densely linked with one another than would other elements because some organizations and some relationships between organizations are more widely perceived and accepted than others. These widely perceived relationships could involve industry leaders, whose actions are frequently observed and discussed, or old-guard firms that are highly stable and taken for granted.

Our first hypothesis follows from these ideas. It predicts that when hospital administrators' individual maps of the strategic groups in their market are compared, we will find that some hospitals are frequently linked to certain others,

indicating widespread agreement about their association. Other hospitals, however, will be only weakly linked to a variety of others, indicating a lack of consensus about their associations. Hence, some hospitals will be more representative of shared understandings than others (Porac and Thomas, 1990).

HYPOTHESIS 1 A comparison of administrators' categorizations of hospitals into strategic groups will reveal strong consensus about some hospitals' groupings but not others.

Strategic position

As noted earlier, a number of studies, particularly those by Johnson and associates, have looked at the diversity among managers' cognitive groups, based on differences in organization, functional area, nationality, and so on. In their most recent work, Daniels et al. (2002) hypothesized that the task environment may encourage divergence of cognition as managers attempt to position their organizations distinctly in order to achieve competitive advantage. We agree that the idea is convincing but believe that it warrants further investigation. Specifically, we contend that a hospital's current strategic position within the market will affect its administrator's perception of strategic groups.

An organization's strategic position, or realized strategy, can be described as a mix of capabilities and advantages arising from its unique resources (Wernerfelt, 1984), the path dependence of historical events (Dierickx and Cool, 1989), and the idiosyncratic forces of organizational culture and structure affecting managerial decision making (Barney, 1986). Once realized, these past choices can affect future patterns of attention and action (Smircich and Stubbart, 1985). For instance, low-cost operators may be vulnerable to competitors' image-building campaigns because their attention is focused on cost; whereas technology leaders may become so enamored with new innovations that they fail to keep their eye on smaller competitors' service quality improvements (Porter, 1980). As these examples show, managers in different organizations may view their competitive environments differently, either because of their beliefs about their firm's distinctive competencies (Daniels et al., 2002) or because actual resource availabilities or constraints focus their attention in some way.

This logic suggests that the structural and cognitive approaches to understanding competitive analysis are not necessarily at odds (Chen, 1996). In fact, Lant and Baum's (1995) study of the New York City hotel market showed that firms within cognitive groups were comparable with respect to certain objective strategic dimensions including size, price, location, and market segment served. These findings suggest that objective strategic positions and perceptions of strategic groups may influence one another reciprocally. In this case, we expect to see a relationship between objective measures of strategy and perceptions of strategic groups.

HYPOTHESIS 2 Differences in hospital administrators' perceived strategic groups will relate to differences in strategic positioning variables (size, location, scope, and differentiation).

Salience and comparability

As Daniels et al. (2002) noted, the institutional environment is expected to influence managers' perceptions of industry competition and strategic groups. Institutional theorists maintain that firms will most likely attempt to imitate those that are perceived as most effective or successful (DiMaggio and Powell, 1983). To assess whether institutional forces were operating among our sample firms, we looked at which other hospitals administrators cited as part of their own strategic group. Thus, we were interested in exploring the impact of shared beliefs on decision-making through referent definition. If cognitive groups affect what managers notice, then they influence managerial decision-making and subsequently firm behavior because choice is constrained.

We propose that administrators will share perceptions about what firms are their self-referents and focus attention on high-status hospitals for reasons of resource dependence and informational value (Peteraf and Shanley, 1997). Administrators are likely to name certain hospitals as most salient for comparing their firms because these hospitals might be prototypical or 'core firms' with respect to their position in the industry (Reger and Huff, 1993). Concentration on these hospitals might provide cues that clarify ambiguities in market structure (Porac et al., 1995). These high-status referents may prompt mimetic and normative isomorphism; other hospitals might mimic their strategic actions or adopt their standards in order to raise their own legitimacy among constituents (Lant and Baum, 1995).

Following Porac et al. (1995), we propose that the larger, more differentiated hospitals would more frequently be chosen as part of these self-reference groups. Because of their elevated status, these hospitals might be emulated more as other hospitals seek to obtain the benefits of greater reputation that accompany high status (Peteraf and Shanley, 1997). We do not, however, expect these choices to be reciprocated. In similarity judgments, less prominent firms may be compared to more prominent firms, but not vice versa (Porac et al., 1995). As Gronhaug and Falkenberg (1989) pointed out, competitors' perceptions of each other are not necessarily mutual. Large firms are more conspicuous and are more likely to be attended to in interfirm comparisons (Porac et al., 1995), and may be seen as more of a threat than small ones (Gripsrud and Gronhaug, 1985). Similarly, differentiated firms are more likely to be monitored and imitated, particularly if they are able to distinguish themselves on attributes central to their task environment (Porac et al., 1995).

HYPOTHESIS 3 Administrators will select some hospitals more often than others to be part of their self-reference groups. Hospitals that are larger

and more differentiated will be selected more frequently than others but will not necessarily reciprocate these choices.

Research methods

Sample and overview

In this research, our objective was to compare the content and structure of the cognitive strategic groups of hospital administrators in a metropolitan market in the central United States. The 20 hospitals included in this research were large and small hospitals, city and rural hospitals, religion-affiliated hospitals, and academic hospitals. They comprised the entire local market with the exception of one hospital used in our pre-test. Our methodology differed in several ways from prior studies: (1) we asked managers to identify strategic groups within the local hospital market; (2) we used the full context form of the repertory grid technique; (3) we used data describing each hospital's task environment, or strategic position, to help explain administrators' choices; and (4) we created measures of overall strategic consensus and individual agreement to assess convergence and divergence of cognitions among respondents.

Identification of cognitive strategic groups

Instead of asking administrators to define their competitors as other studies have done (e.g. Daniels et al., 2002; Lant and Baum, 1995), we showed them Peteraf and Shanley's (1997) definition of strategic groups. That definition is 'a meaningful substructure of firms within an industry – one that is acknowledged by industry participants and one that has significance to them'. We used this definition because it is both specific and ambiguous. It is specific in that it tells participants that there are groups in the industry that are supposed to be meaningful. It is ambiguous, because it does not tell them on what basis these groups are formed. Yes, they are strategic, but what does that mean? We wanted our respondents to give us their views of meaningful strategic groups so that we could see how much consensus emerged around their definitions. We specifically did not use the word competitors, because we wanted to learn whether respondents themselves defined these groups in terms of competitors or whether they would use some other dimensions.

Repertory grid technique

To elicit these groups, we used the full context form of the repertory grid technique (Kelly, 1955). The repertory grid technique is grounded in Kelly's (1955) personal construct theory which maintains that individuals seek to predict and control events by forming theories about how concepts relate to one another

(Daniels et al., 1995). It has been used in hundreds of studies (Fransella and Bannister, 1977) and across all management functions (Dainty, 1991). Several have recommended the methodology for business and public policy studies (Dunn and Ginsberg, 1986; Walton, 1986).

The repertory grid technique is a structured method of eliciting elements, constructs, and the linking of elements and constructs which make up individuals' mental maps of the world (Dainty, 1991). In terms of strategic group research, 'elements' are firms, while 'constructs' are the dimensions used to distinguish firms from one another. The linking of elements and constructs is therefore the process that managers use to group (or not group) firms into strategic groups. Key to Kelly's (1955) theory and technique is that the way respondents interpret their experiences or meanings is important, rather than the meanings or interpretations of investigators (Dainty, 1991). The full context form of the repertory grid technique allows respondents to form groupings. The minimum context form, used by most researchers who espouse the repertory grid technique, is more dependent on researcher involvement.

The minimum context form elicits constructs from respondents in 'triads' (Easterby-Smith, 1981). That is, respondents are instructed to discuss, in groups of three, how two of the three elements are similar and how the third is different. In the context of strategic group research, the minimum context form is therefore dependent on the researcher to form strategic groups, using the ratings of all firms on the respondent-generated constructs (strategic dimensions). One way to do this is through computer analysis of grids using principal components or cluster analyses.

Reger and Huff (1993) utilized the minimum context form in their study of Chicago bank holding companies, citing reliability and validity concerns. The issue of reliability and validity is complex for repertory grids, however, because there are so many ways to construct one (Beail, 1985), they can involve a number of different constructs and elements, and many kinds of scores can be derived from their use (Bannister and Mair, 1968). Information on the reliabilities of different grid forms is scarce and it might be pointless to generalize about 'the reliability of the grid' (Bannister and Mair, 1968: 175). Despite these concerns, Bannister and Mair (1968) argue that overall the grid technique has reasonable validity, and has been reliable by producing similar representations of a person's mental model over time (Daniels et al., 1995). We adopted the full context form in this study for the above reasons, and because our primary purpose was to determine whether or not consensus existed regarding respondents' groups. This question could not be readily answered by the minimum context form.

In the full context form, index cards representing all elements are presented to the respondent at the same time. The respondent is asked to think of important ways in which groups of these elements are similar or different. For this research, 20 cards were prepared, each containing the name of one hospital in a distinct urban geographic market. Then each decision-maker was asked to

group the cards in such a way that hospitals within groups were similar to each other but different from those in other groups. They were told that there could be as few as one group of 20 or as many as 20 groups of one. As an administrator added a card to a group, he/she was asked how the card was similar to the others in that stack and different from those in other stacks. This process continued until all cards had been considered and placed in a stack even if it was a stack of one. After completing the grouping exercise, respondents were asked several questions regarding the meaning and importance of the groups.

Strategic position data

We collected data on each hospital's current strategic position from three sources to ensure its accuracy. First, we contacted each hospital's administrative office and asked specific questions; next, we reviewed each hospital's website for the same information; finally, we conducted a telephone interview with the head of the state hospital association (whose offices were located in the metropolitan area we studied) to confirm our definitions of each hospital's scope of service. As a result, we identified the following variables:

- *The number of Beds*, a measure of size.
- *Location*, a measure of the distance (in miles) of each hospital from the downtown center of the large city in which the hospitals were located.
- *Multispecialty*, a binary variable indicative of the hospital's multispecialty capabilities (coded 1) or its niche focus (coded 0).
- *Scope*, an indicator of the scope of hospital services; a score of 1 was used to indicate a provider of primary services, 2 a provider of secondary services, and 3 a provider of tertiary care.
- *Teaching hospital*, a variable used to indicate whether each hospital is a teaching hospital (coded 1) or not (coded 0).
- *Differentiation*, a binary variable used to classify hospitals according to their national or regional reputation for particular health care services; for example, one hospital was known as one of the US's top heart hospitals, while another was well known as the region's only Level 1 trauma center and cancer center. A score of 1 indicated that the hospital was differentiated in this manner, while a score of 0 indicates that it was not.

In addition, we created the categorical variable *Strategy*, consisting of three categories, by classifying each hospital according to its scope and differentiation (Porter, 1980). Eight hospitals were coded 1, representing hospitals that provided only primary and secondary care (narrow scope), and that were not differentiated. Six hospitals were coded 2, representing tertiary care (broad scope), non-differentiated hospitals. Finally, six hospitals were coded 3 to represent hospitals that provided tertiary care (broad scope) and were differentiated. None of the hospitals in our sample were primary or secondary (narrow scope) differentiated care providers.

Measures of convergence and divergence in cognitive strategic groups

To ascertain whether consensus existed about linkages between some hospitals as specified in our first hypothesis, we calculated the percentage of respondents who linked each pair of hospitals. We considered *strategic consensus* to be achieved whenever a particular pair of hospitals was linked by at least 48% of the respondents. This percentage was chosen because it allowed us to capture shared links among all but two of our 20 hospitals, and because it is an indicator of pairings that were shared by approximately one-half of the administrators. We then used these percentages to create a visual representation of the typical groupings perceived by sample administrators.

We used several measures to assess differences in individual respondents' mental maps (hypothesis 2). First, we examined the *Number of perceived groups* elicited from each administrator. Next, we created the variable *Industry agreement* to represent the extent to which a particular administrator was in agreement with the widely shared linkages just described. That is, if a hospital administrator agreed with any of the pairings that were shared by 48% or more of the administrators (24 possible pairings in total), then 1 was recorded for the pairing, if not, then 0 was recorded. The sum of the agreements with the individual pairings was then computed. The possible range for this variable was 0 to 24. In actuality, the score on this variable ranged from 7 to 21. To account for the relative commonality of particular pairings, the *Industry agreement* variable was weighted by the percentage of administrators that were in agreement with each specific pairing to create a *Weighted industry agreement* variable. Each score of 1 in the *Industry agreement* variable computation was multiplied by the percentage of administrators in agreement, with the more commonly shared pairings receiving greater weight. For example, Williamson's *Industry agreement* score is 19, indicating that 19 of this hospital administrator's pairings were shared with at least 48% of the administrators. Williamson's *Weighted industry agreement* score is 13.69, however, reflecting that this administrator's pairings were shared unevenly, by between 48% to 95% of all administrators. The range of the *Weighted industry agreement* variable was from 4.76 to 14.84. To test hypothesis 2, we examined the correlation between *Industry agreement*, *Weighted industry agreement*, *Number of perceived groups* (the third dependent variable indicating the number of elicited groups reported in Table 2), and six strategic position variables: number of *Beds*, *Location*, *Multispecialty*, *Scope*, *Teaching hospital*, and *Differentiation*.

To test our third hypothesis, we accounted for the number of times each hospital was chosen as a *Referent* by others (i.e. the number of times each hospital was chosen by other respondents as part of their own strategic group) and the *Number of referents chosen* by each administrator. The difference between *Referent* and the *Number of referents chosen* was used as a measure of the degree to which each hospital was chosen by others more or less than it had chosen others as referents (*Referent difference*). Positive numbers on *Referent difference* indicated that

Table I Raw grouping grid

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t
1 Orange	1	2	2	4	1	1	5	3	2	2	2	1	5	4	1	1	5	5	2	3
2 Lafayette	1	1	1	2	2	3	4	5	5	3	3	5	4	2	2	2	4	4	3	6
3 Anderson	1	1	1	3	4	5	6	7	5	5	5	5	4	4	3	4	6	3	5	2
4 Sevier	1	1	1	2	2	2	3	3	2	2	2	2	3	2	2	2	3	3	2	3
5 Mobile	4	4	4	8	1	7	5	5	8	6	6	8	1	1	7	1	3	8	7	2
6 Robertson	1	1	1	3	6	2	5	1	4	6	2	4	6	6	3	6	6	4	3	7
7 Rutherford	1	1	1	2	6	4	5	5	3	6	5	3	6	6	4	6	6	3	4	7
8 Williamson	3	3	3	1	4	2	5	1	6	4	1	6	4	4	2	4	4	6	2	1
9 Hamilton	1	1	3	4	4	3	1	1	3	1	3	3	4	4	4	4	2	1	1	1
10 Thomas	1	1	1	3	2	3	5	5	2	3	3	3	5	3	2	2	5	5	3	4
11 Farragut	1	1	1	2	3	4	5	6	7	8	3	7	3	3	4	3	3	7	4	9
12 Killeen	1	1	1	3	3	3	2	2	3	3	3	3	2	3	2	2	1	2	3	1
13 Memphis	1	1	1	2	7	6	3	4	5	7	7	5	7	7	6	7	7	5	6	1
14 Middleton	1	1	1	2	6	3	2	2	4	5	5	4	6	6	3	6	6	4	3	1
15 Dixon	1	1	1	4	2	5	1	1	3	3	5	4	2	2	4	2	2	4	5	6
16 Davidson	1	1	1	2	5	3	2	2	6	4	4	6	5	5	3	5	5	6	3	1
17 Franklin	2	1	1	3	3	3	1	2	2	2	2	2	3	3	3	3	3	2	3	2
18 Jackson	1	1	1	2	3	4	2	5	2	3	3	2	3	3	4	3	3	2	4	6
19 Knox	1	2	2	1	4	3	4	1	4	4	3	3	4	4	4	4	4	4	4	3
20 Putnam	3	3	5	2	2	1	2	6	1	1	1	1	2	2	2	2	7	2	1	4

Facility Legend

- a. Mobile
- b. Anderson
- c. Putnam
- d. Williamson
- e. Davidson
- f. Farragut
- g. Sevier
- h. Hamilton
- i. Robertson
- j. Knox
- k. Memphis
- l. Jackson
- m. Killeen
- n. Middleton
- o. Orange
- p. Dixon
- q. Thomas
- r. Lafayette
- s. Franklin
- t. Rutherford

hospitals were popular choices – that is, others chose them often as referents, but they themselves chose fewer referents. For example, Killeen was chosen by nine hospitals as a *referent*, although it chose only five referents, thus Killeen's *Referent difference* score was +4. Negative numbers indicated that firms chose numerous referents, but were seldom selected as referents by others. Memphis chose six referents but was selected by only one, scoring a -5 on *Referent difference*.

We tested hypothesis 3 by examining (a) the correlation coefficients between *Referent*, *Referent difference*, the number of *Beds*, and *Differentiation*, and (b) differences in means across the three *Strategy* categories, as discussed above, on the *Referent* and *Referent difference* variables. The *Referent* variable ranged from 1 to 9 while the scores of the *Referent difference* variable ranged from -7 to +4.

We tested both hypotheses 2 and 3 with nonparametric tests. Our data set was small and consisted of binary, categorical, continuous, and interval data; therefore, we used distribution-free tests that required few data assumptions. Specifically, we computed Spearman Rank Correlation coefficients and used the Kruskal-Wallis one-way analysis of variance test to analyze our data. These procedures use the rankings of scores on variables rather than the actual observations. Cases from the groups (where appropriate) were combined and ranked. When there were ties, average ranks were assigned. The Spearman's rho correlation coefficients and results of the Kruskal-Wallis analysis of variance (the *H* statistic) can be interpreted similarly to the Pearson correlation coefficient and Analysis of Variance tests, respectively (Norusis, 1990).

Results

Individual respondents' perceived strategic groups

Table 1, the raw grouping grid, shows the groups formed by each hospital administrator as he or she sorted the cards into piles. The numbers in the grid do not have the same meaning for different respondents, as each respondent created different groups. On average, the 20 respondents each formed six groups; the numbers ranged from three to nine.

It was clear that the various administrators often used different grouping strategies. Some grouping strategies were very simple; for instance, Sevier's administrator identified three groups: niche hospitals, academic hospitals, and community/others. In contrast, Dixon's manager formed six groups including major competitors, large county hospitals, Killeen System, and long-term care, as well as 'furthest away' and 'not my competitors'.

Altogether, the 20 respondents used a total of 70 dimensions to describe their groupings. This represents an average of 3.5 dimensions per respondent. Three dimensions were used far more often than the others: customer niche, reported by 16 of the 20 respondents (80%), and affiliation and location, both reported by 14 respondents (70%). Two other dimensions, scope of care

Table 2 Strategic grouping consensus matrix

Facility	Mob	And	Put	Wil	Day	Far	Sev	Ham	Rob	Kno	Mem	Jac	Kil	Mid	Ora	Dix	Tho	Laf	Fra	Rut
Mobile	.86	.76		.10	.05	.05	.14	.29	.05	.10	.05	.10	.05	.00	.10	.05	.05	.14	.05	.38
Anderson			.90	.05	.00	.00	.19	.19	.05	.10	.05	.00	.00	.00	.05	.00	.05	.10	.10	.29
Putnam				0.05	.00	.05	.14	.14	.10	.05	.10	.00	.00	.00	.05	.00	.05	.05	.05	.24
Williamson				.19	.19	.19	.24	.24	.14	.14	.19	.29	.10	.38	.43	.24	.05	.29	.24	.14
Davidson				.10	.05	.10	.05	.00	.19	.38	.24	.14	.71	.90	.38	.95	.57	.10	.14	.00
Farragut					.00	.00	.00	.00	.29	.33	.52	.38	.05	.19	.52	.14	.05	.00	.86	.00
Sevier								.48	.10	.10	.05	.05	.33	.10	.19	.14	.29	.48	.05	.14
Hamilton									.05	.10	.14	.10	.14	.00	.10	.05	.05	.24	.05	.33
Robertson										.43	.38	.81	.05	.14	.14	.14	.05	.52	.29	.05
Knox											.67	.33	.29	.43	.05	.33	.29	.14	.43	.10
Memphis												.43	.14	.29	.05	.19	.14	.05	.48	.10
Jackson													.00	.10	.14	.10	.00	.48	.33	.05
Killeen														.76	.24	.81	.76	.29	.05	.00
Middleton															.19	.81	.57	.05	.19	.00
Orange															.38	.38	.10	.29	.48	.05
Dixon																	.52	.14	.05	.00
Thomas																		.24	.05	.10
Lafayette																			.05	.14
Franklin																			.05	.14
Rutherford																			.05	.00

Legend
 Shade % of agreement Share of total pairings
 Not shaded .00-.47 .85
 Moderately shaded .48-.80 .11
 Heavily shaded .81-1.0 .04

Note: This matrix includes data from the managers of all 21 hospitals in the target market. Each manager categorized the 20 focal firms studied in this research.

(primary/secondary/tertiary) and academic status, were considered by six and five administrators, respectively.

When asked whether the groups that they had just created were important, every one of the 20 respondents said yes. In discussing this point, they said not only that the groups were embedded in their minds but also that they considered these groups consistently when deciding what strategies to employ. For instance, one administrator described the groups as 'part of my dashboard of strategic gauges'. Another said 'We determine our strategies based on how we deal with our group members and the similarities and differences of group members.' Other comments on the importance of these groups to these respondents follow:

- These groups . . . are a major factor in my understanding of the competitive environment. I look at my group for potential synergies. I don't look at the others [groups] in the same vein.
- This [grouping] is my competitive world. My group are my competitors. The others are nonentities. This may sound arrogant but if this group came into our back yard, we still wouldn't consider them competitors.
- We look at those within our group more when making decisions.
- Our group is extremely important. In some cases group members are competitors; in some cases, they are collaborators.
- Yes, this grouping is real; it is very real. We compete with xxx but we need them.
- All of these hospitals are competitors of ours. It is a matter of degree.
- Some groups are competitors; some are not. I look at those in my group as being my largest competitors. When I look at how I compete, I look at how I am similar and different. I use this for competitive advantage.
- I only look at two groups. The rest I ignore.
- We consider these (pointed to his group) when we determine strategy.
- I use it to determine who to partner with.
- They (the groups) are ingrained and filed in my head. I can't help but consider them when I make decisions.

From these comments, we learned that these administrators viewed strategic groups both as competitors (in varying degrees) and as collaborators. Moreover, there was strong sentiment that these groups were often considered in decision-making.

Hypothesis 1: representative firms

Our first hypothesis posited that there would be consensus among administrators about some groups of hospitals (but not others) in this market. The consensus matrix, shown in Table 2, indicates the percentage of administrators who linked each pair of hospitals. The shaded cells in Table 2 represent linkages between hospitals that were identified by at least 48% of respondents. Just 24

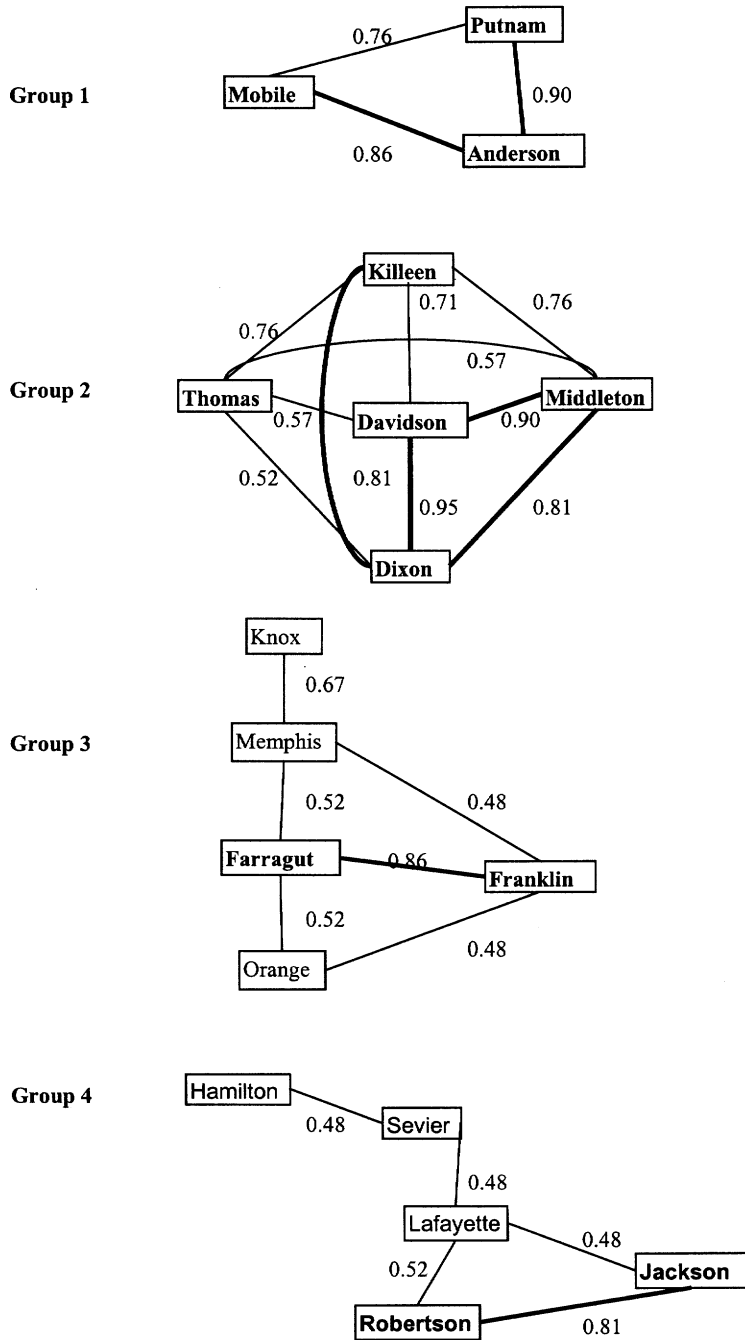


Figure 1 Graphic representations of typical strategic groups

cells, or 12% of the 190 total cells, are shaded. Of these 24 cells, eight, or 4%, are heavily shaded. These eight cells represent the strongest agreements about linkages between hospitals; indeed, at least 81% of all respondents consistently paired these hospitals. In other words, the administrators in this sample displayed the strongest consensus about eight associations among six of the 20 hospitals. At the same time, 69 cells in Table 2 hold a zero or .05 indicating that these hospitals were never linked or were linked by only one administrator. This shows strong agreement that certain hospitals did not belong together.

To help visualize the common groupings perceived by sample members, we used the shaded cells from Table 2 to create graphical representations of 'typical groups' (see Figure 1). The percentage of administrators in agreement with particular pairings is shown between the linked hospitals. The thick lines are used to indicate pairings that were shared by at least 81% of the managers.

A close look at Figure 1 reveals that in each 'group' there were at least two core hospitals whose associations with each other were virtually unquestioned; yet, each core hospital also had links to peripheral hospitals that were less widely shared. Group 1, comprised of three niche hospitals, was the group most commonly recognized by respondents. Specifically, Anderson and Putnam were grouped together by 90% of the respondents; Mobile was associated with Anderson by 86% of respondents and with Putnam by 76%. Each of these facilities is a behavioral hospital dealing only with one area such as psychiatric problems, alcohol, or drugs. Although other hospitals in the area provided these services, this group was comprised of hospitals whose sole business is in this arena.

The hospitals in Group 2 were all part of a corporate hospital management group, Killeen System. Thomas, with the weakest shared links to other members of the group, was different in that it was a children's hospital with a strong national reputation. It was also sometimes grouped with the other downtown hospitals. In this group, its strongest link (76%) was with Killeen, which also boasted a national reputation. Although Killeen was the lead hospital in this group, the strongest perceived links were among Davidson, Middleton, and Dixon – three regional multispecialty hospitals, which had all been absorbed by the Killeen system.

Group 3 was somewhat more complex. Farragut was associated with Franklin by 86% of respondents. About half of the respondents also linked both of these hospitals to Orange. This grouping can be explained by the fact that Farragut, a Baptist hospital, had management contracts to run both Franklin and Orange. Another half of the respondents also linked Farragut and Franklin to Memphis, which in turn was associated with Knox by 67% of the sample. Farragut, Franklin, Memphis, and Knox were viewed as similar due to their locations in small counties just outside the urban center of this market. Indeed, Knox and Memphis were the only hospitals of those we studied to be located just across the state line from the rest. Therefore, Group 3 as depicted here appears to reflect two separate grouping strategies: first, a group based on

Table 3 Spearman's rank correlation coefficients

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Industry agreement	.997***										
2. Weighted industry agreement	.371	.392†									
3. Number of perceived groups	-.444†	-.429†	-.465†								
4. Beds	-.551*	-.531*	-.484*	.750***							
5. Differentiation	.467*	.443†	.152	-.425†	-.550*						
6. Location	-.120	-.130	-.555*	.409†	.327	.195					
7. Multispecialty	-.367	-.355	-.495*	.681**	.765***	-.437†	.410†				
8. Referent	-.185	-.166	.076	.526*	.561*	-.638**	-.065	.708***			
9. Referent difference	-.083	-.089	-.555*	.540*	.522*	-.275	.324	.617**	.339		
10. Scope	-.369	-.365	-.635**	.774***	.845***	-.469*	.392†	.811***	.521*	.882***	
11. Strategy	-.573**	-.572**	-.554*	.299	.630**	-.612**	.289	.652**	.403†	.460*	.618**
12. Teaching hospital											

n = 20

† p < .10 * p < .05 ** p < .01 *** p < .001

affiliation or management contract; and second, a group loosely based on the nature of the hospitals' locations.

Group 4 also revealed two distinct grouping strategies. In this case, 81% of the respondents perceived a relationship between Robertson and Jackson while about half grouped each of these hospitals with Lafayette. Lafayette, a nationally recognized Jewish hospital, manages both Robertson and Jackson. It is also an academic hospital and engages in a research partnership with Sevier, another downtown academic hospital, with whom it was linked by 48% of respondents. Sevier, in turn, was linked to Hamilton by 48% of respondents because of their joint academic relationship. Note that Sevier, Hamilton, and Lafayette did not actually represent a strategic group. Hamilton and Lafayette were never linked directly to each other.

The last two hospitals, Williamson and Rutherford, were not consistently paired with any other hospital. Williamson, the lone Catholic hospital in the area, was variously described as lacking direction, seeking alliances, and lacking patients. Rutherford was part of a national chain of long-term care hospitals. When it was grouped with others, it was most frequently associated with Mobile, Hamilton, and Anderson, the other niche players.

It is clear from these results that the hospital administrators in this sample shared some ideas about the strategic groups in this market. Specifically, most respondents agreed that the hospitals in Group 1, the niche players, and Group 2, Killeen system, belonged together. This finding supports hypothesis 1 and is in line with past research on collective perceptions of groups (cf. Lant and Baum, 1995; Reger and Huff, 1993; Porac et al., 1995). Other groups, however, were less clearly defined and administrators' perceptions varied. Indeed, some relationships among hospitals appeared to be defined in several distinct ways. Lafayette, for instance, was sometimes grouped with two smaller hospitals based on its management contracts, but was also frequently linked to another large, academic hospital. This leads to our discussion of the results of tests for differences among managerial perceptions of strategic groups.

Hypothesis 2: strategic position

Hypothesis 2 predicted that differences in hospital administrators' perceived strategic groups would be related to differences in strategic position. As shown in Table 3, several of the strategic position variables were correlated with *Industry agreement* and *Weighted industry agreement*. *Differentiation* and *Teaching hospital* were negatively associated with both of the industry agreement variables, while *Location* was positively associated with both variables. The number of *Beds* was negatively correlated (but only marginally) with both *Industry agreement* dependent variables. Several strategic position variables also related to the *Number of perceived groups*. The numbers of *Beds*, *Multispecialty* and *Differentiation* were all negatively associated with number of groups perceived.

Table 4 presents the results of the Kruskal–Wallis analyses of variance that tested for differences according to the variable *Strategy*, or overall strategic position across the three dependent variables as discussed earlier. As shown in the third and fourth columns of Table 4, hospitals in strategy 3 (broad, differentiated care providers) appear to have much lower levels of agreement with the typical industry pairings. Moreover, column 5 shows that those in strategy 1 (narrow, non-differentiated care providers) perceived significantly more groups than others. Overall, these results suggest that administrators of large, differentiated, and tertiary care hospitals created simpler maps of the industry and were less likely to agree with the commonly elicited pairings.

Hypothesis 3: salience and comparability

Hypothesis 3 predicted that administrators would select larger and more differentiated hospitals more frequently than others as part of their self-reference groups. It also predicted that those most frequently chosen hospitals would not necessarily reciprocate those choices.

As shown in Table 3, larger hospitals and differentiated hospitals were chosen more often than others as referents by the 20 hospital administrators in the sample. Hospitals further away from the city center, and niche hospitals, were less likely to be chosen as referents. Also in agreement with hypothesis 3, the numbers of *Beds* and *Differentiation* were positively correlated with *Referent difference*, indicating that larger and differentiated hospitals did not reciprocate their being chosen as referents. Being away from the downtown area also made a hospital less likely to be named as a referent. The sixth and seventh columns of Table 4 also provide support for hypothesis 3, suggesting that group 3 hospitals (broad, differentiated health care providers) were more likely to be named as referents, and were more likely to not reciprocate their being named as referents. This finding corroborates earlier work by Porac et al. (1995).

Table 4 Kruskal–Wallis analyses of variance

Strategy	<i>n</i>	Industry agreement	Weighted industry agreement	No. of perceived groups	Referent	Referent difference
Non-differentiated primary/secondary (1)	8	11.50	11.56	14.75	6.00	7.88
Non-differentiated tertiary (2)	6	14.00	13.75	9.00	10.08	9.08
Differentiated tertiary (3)	6	5.67	5.83	6.33	16.92	15.42
<i>H</i> ratio		6.39	5.82	7.85	12.93	6.13
d.f.		2	2	2	2	2
<i>p</i> -level		.041	.054	.020	.002	.047

Note: Mean rankings reported.

Discussion

Previous research has examined how managers categorize competitors to form strategic groups, thereby simplifying their competitive environment (Easton et al., 1993; Gripsrud and Gronhaug, 1985; Lant and Baum, 1995; Porac et al., 1989; Porac and Thomas, 1990, 1994; Reger and Huff, 1993). Given so much evidence, it was not surprising that our sample of hospital administrators easily generated groups, when asked. But would these groups be highly idiosyncratic or widely shared? The purpose of this research was to explore the extent to which consensus and divergence existed among hospital administrators' perceived strategic groups in a distinct geographic market, and to explore task and institutional factors that might influence these perceptions.

Taken together, our findings provided support for the three hypotheses we set out to test. First, our findings revealed patterns of convergence and divergence among these administrators' cognitive maps of the local hospital market. Convergence was clear in that six of the 20 hospitals were paired consistently by over 80% of the sample. Indeed, two of these hospitals were linked by 95% of respondents. Our examination of these widely shared links showed them to be based primarily on affiliation and niche. Divergence occurred when respondents disagreed about the nature of linkages between hospitals. In some cases, cliques or subgroups appeared to be using alternative criteria to categorize the same hospitals. For instance, about half the sample linked Lafayette to two smaller hospitals based on affiliation, while the other half focused on its reputation and academic status by linking it to Sevier. In other cases, no clear patterns emerged and hospitals were linked idiosyncratically to a variety of others.

These findings support the literature's contention that there will be institutionalized beliefs about strategic groupings (Daniels et al., 2002; Lant and Baum, 1995). We found that not only do managers share cognitions about what firms they compete with (Lant and Baum, 1995); they also share beliefs about their industry's competitive structure. Our findings also strengthen the assertion that some firms may fit a strategic group better than others (Reger and Huff, 1993). That is, some firms might be representative of the central tendencies of a commonly shared and understood industry category (Porac and Thomas, 1990). Our six highly linked hospitals may represent core organizations (Porac et al., 1995; Reger and Huff, 1993) in that they were clearly defined by respondents based on one dominant attribute. More peripheral players were linked less consistently to others because respondents used diverse attributes to categorize them. Thus, the boundaries of cognitive strategic groups are fuzzy or ill-defined (Peteraf and Shanley, 1997; Reger and Huff, 1993).

Second, respondents varied according to the number of common links that they included in their individual maps. To help explain these differences, we measured the extent to which each manager incorporated the commonly recognized links in their grouping schemes, and then correlated these agreement scores with certain task environment or strategic positioning variables. In so

doing, we found that the respondents' task environment or strategic position influenced the divergence of their cognitive maps (Daniels et al., 2002; Lant and Baum, 1995), but in unexpected ways. Interestingly, the administrators of larger hospitals, teaching hospitals, and those that held regional or national reputations were less likely to agree with commonly perceived linkages. In contrast, managers of rural hospitals located further from the urban center were more likely to agree. At first, these findings appear backwards; yet, they make sense in this specific context. The market we studied consisted of a number of downtown hospitals in a metropolitan area and rural community hospitals in the surrounding counties. The rural hospitals tended to be moderately sized, multispecialty hospitals with no real differentiation. However, six of the downtown hospitals were large, tertiary care institutions with either regional or national reputations in particular specialty areas.

In general, the administrators of these large differentiated hospitals viewed strategic groups differently than did the less prestigious players. They tended to divide the 20 hospitals into fewer groups and used fewer dimensions to define the groups. This tendency became most clear when we divided the hospitals into three categories based on Porter's (1980) generic strategies. Category 1, the narrow, non-differentiated hospitals, reported an average of 6.9 groups and had an industry agreement score of 17.1. Category 2 averaged 5.3 groups and industry agreement of 18.3. Category 3, the broad, differentiated hospitals, reported an average of 4.7 groups and 12.7 industry agreement. For instance, the administrator of Killeen, which is nationally recognized for its heart network, listed only three groups – the niche players, the tertiary care providers, and the rest. It appeared that the administrators of differentiated hospitals were not particularly concerned with the smaller, less competitive players in the market, often lumping them together on the basis of location (rural, county, community-based, etc.) or even labeling them 'not our competitors' or 'others'. This finding supports Porac and colleagues' notions that less prominent firms are compared to more prominent firms, but not vice versa.

These findings also corroborate Daniels et al.'s (2002) ideas that the task environment influences what organizational managers notice. We have shown that the task environment does indeed explain divergence in the perceptions of strategic groups, as can be explained by differences in strategic position variables. In our study, the administrators of larger and more differentiated hospitals appeared to view groupings in this market segment differently than did others. In fact, they seemed to restrict their range of attention to only those hospitals most similar to themselves. Peteraf and Shanley (1997) posited that this phenomenon would be likely to occur among high-status firms. Yet, case studies of companies such as Xerox or the US automotive industry have shown that such blind spots can be dangerous for firm performance in the long run (Zahra and Couples, 1993). The managers of smaller and non-differentiated hospitals also tended to compare and benchmark their organizations to the prototypical or ideal hospitals, but in addition, they had more detailed conceptualizations of

industry groupings. Thus, while we found consensus regarding particular industry groupings, we also found divergence, related to strategic positioning.

Finally, despite their lack of agreement with common perceptions, the larger, differentiated hospitals were often chosen as referents by others, perhaps due to their higher status and informational or reputational value (Peteraf and Shanley, 1997). In fact, the six broad, differentiated hospitals were selected as referents by an average of 6.6 respondents. In contrast, narrow, undifferentiated hospitals were selected on average by only two others as referents. These results suggest that isomorphic processes may be occurring as the less prestigious local players strive to emulate their larger, more widely recognized peers (Haveman, 1993). The more conspicuous hospitals, large and differentiated, were more likely to be used as industry-wide benchmarks, clearly supporting the influence of institutional pressures on perceptions of strategic groupings (Daniels et al., 2002). These findings also strongly support Porac et al.'s (1995) hypothesis that large firms would be defined by both large and small firms as rivals, although large firms would only define other large firms as rivals. That is, rivalry might be asymmetrical (Lant and Baum, 1995; Porter, 1980).

Our study is the first to examine competitive groupings as constructed by administrators for sources of convergence and divergence. We found evidence of institutional explanations for the convergence in managers' mental models of competitor definitions and groupings and for their definitions of self-referents. We also are the first to correlate specific strategic positioning variables with diversity in the content of cognitive strategic groups. As a result, our study builds on the insights of Daniels et al. (2002) and Lant and Baum (1995) who propose that both institutional and task influences shape managerial perceptions of strategic groups. In so doing, we have helped to reconcile conflicting views concerning the levels of consensus of managers in particular industries with regard to strategic groups (Hodgkinson, 1997). Researchers of cognitive strategic groups should be aware that the level of agreement about strategic groups may vary by industry depending on the mix of task and institutional forces. Some researchers speculate that high belief similarity will only occur within industries at later stages of the industry life cycle or that are highly institutionalized (Levenhagen et al., 1993). More research is needed across a range of industries to confirm this idea.

Our results move one step further toward explaining how competitors are defined (Porac et al., 1995), and suggest that the perceptions of strategic groups are not widely shared within certain industries at certain times. There is still much to be learned by studying cognitive strategic groups, however. As Walsh (1995) noted, studies of individual strategists' cognitions have important implications for understanding firm strategic choice and organizational performance (cf. Smircich and Stubbart, 1985; Stubbart, 1989). Indeed, more work is still needed to link individual management cognitions to organizational outcomes (Ginsberg and Venkatraman, 1992; Thomas et al., 1993). With regard to cognitive strategic groups, it would be interesting to link individual differences in

perception to firm performance. Does the best performance accrue to those firms whose managers agree with industry-defined groups or is some disagreement important?

Our respondents overwhelmingly advocated the importance of these groups in their decision-making processes. They described some groups as both rivals and potential collaborators, thereby giving us a more nuanced view of these groups. Hence, we believe that researchers could benefit by looking more closely at the dimensions used by strategists to form these groups. Are the cognitive structures or dimensions used to group consistent from one industry to another? Research into other industries would shed light on the differences and commonalities across industries.

Our study is not without limitations. As with all single-industry studies, this study's focus on the health care industry provided enhanced internal validity, but at the price of reduced generalizability. Moreover, our method of eliciting strategic groups from respondents may have influenced our results. Instead of asking administrators to identify rivals, we asked respondents to form strategic groups based on names that we provided. This allowed us to compare the content of the groups they formed. It may turn out that there is no one best way to elicit cognitive strategic groups. Each method has its own strengths and limitations and each allows us to learn something different. We believe that this research is no exception.

Conclusion

Research based on the cognitive perspective has enhanced our understanding of strategic management by showing how managers' mental models influence competitive analysis and strategic decision-making (cf. Porac and Thomas, 1990; Reger, 1990; Stubbart, 1989). A critical element of this research has been a focus on how collective definitions of strategic groups and industry structure become institutionalized through imitation and interaction (Lant and Baum, 1995; Porac et al., 1989; Reger and Huff, 1993), and how these collective beliefs influence firm behaviors and outcomes (Osborne et al., 2001; Nath and Gruca, 1997; Peteraf and Shanley, 1997). Yet a number of studies have revealed substantial diversity across managers' perceived strategic groups in a number of industries (Hodgkinson and Johnson, 1994; Daniels et al., 1994; Johnson et al., 1998). Following Daniels et al. (2002), we contend that although industry-wide institutionalization processes certainly influence perceptions, each manager's mental map of the competition is also shaped by his or her organization's strategic position. Indeed, our research shows that both institutional and competitive environments influence managerial cognition. Although some of our respondents' perceived groupings were widely shared, signifying the effects of institutional forces, others varied from the norm, and were related to strategic position. These findings have important implications for managers who must be

concerned both with differentiating their strategies and maintaining legitimacy to allow resource acquisition (Deephouse, 1999). Future research should continue to examine these conflicting demands on managerial cognition, strategic choice, and organizational performance.

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